

REMARKS

Claims 1-56 are pending. By this Amendment, the specification and claims 10, 12, 34 and 45 are amended to correct typographical informalities therein. Applicant submits that the above amendments to the claims do not narrow the claims.

I. Information Disclosure Statements

The Office Action improperly did not consider the references submitted with the Information Disclosure Statement filed on September 18, 2000. These references were cited in a search report from the corresponding international (PCT) application, and a copy and translation of that search report was submitted with the Information Disclosure Statement. According to PTO procedures, the English-language version of the foreign search report satisfies Applicant's requirement to provide a concise explanation of the relevance of the references, and provides the basis for the Examiner considering the references. See MPEP 609, section III.A.(3). However, out of courtesy to the Examiner, and because an additional reference (JP-A-9-15872) is being submitted with an Information Disclosure Statement filed herewith, Applicant provides English-language abstracts and machine translations (as well as any available corresponding English-language (U.S.) patent documents for the foreign references). The correspondence between the U.S. patent documents and Japanese references is as follows:

JP-A-9-015872 (H1774 (SIR));

JP-A-9-223650 (U.S. Patent 6,122,036); and

JP-A-10-270305 (U.S. Patent 6,411,387).

The Office Action also indicates that the Information Disclosure Statement filed October 20, 2000 fails to provide a PTO-1449. The document submitted with the October 20 Information Disclosure Statement was the International Preliminary Examination Report issued by the International Bureau in the PCT application from which the present application

claims priority. This document was provided for the information of the Examiner, and is not intended to be published on the face of the patent (since it is not a prior art publication). Thus, it was not necessary to file a PTO-1449 with the October 20 Information Disclosure Statement.

The Examiner is requested to consider the references submitted with the Information Disclosure Statement filed herewith.

II. The Drawing Objection is in Error

The Office Action objected to the drawings under 37 C.F.R. §1.83(a) on the grounds that flowcharts should be provided relating to the method claims. This objection is respectfully traversed.

The claimed methods are clear from the description provided in the specification and from the apparatus drawings. No further flowcharts are required to understand the invention or to comply with PTO rules or procedures. For example, the claimed methods are not overly complicated, and involve methods (fully explained in the specification) of using the disclosed (and illustrated) apparatus. Corresponding flowcharts likely would be redundant to the claims. Furthermore, as evidenced by, for example, U.S. Patent 5,510,892 to Mizutani et al. (cited in the Office Action by the Examiner), flowcharts have not been required by the PTO in similar situations in this technology (see, for example, claims 20, 21, 26 and 27 of the 892 patent).

Withdrawal of the drawing objection is requested.

III. The Claim Objection Should be Withdrawn

Claims 6-8 are objected to for alleged informalities discussed on page 3 of the Office Action. This objection is respectfully traversed.

The Office Action asserts that the claim 6 step of measuring a height of a "fiducial member" allegedly conflicts with the claim 1 step of measuring a height of a surface of a

substrate. Referring, for example, to Fig. 8, claim 1 relates to an exposure method for forming a predetermined image on a substrate comprising "measuring a height [focus position] of the surface of the substrate [W] at a measuring point [83] disposed in front of the part of the area [46] in the relative movement direction." Referring to Figs. 12 and 13, claim 6 recites a further different step of "using a fiducial member [89] having good flatness arranged on the substrate stage [8] to measure a height of a surface of the fiducial member [89] at a plurality of positions within a movement stroke of the substrate stage [8], and storing a result of the movement." Thus, claim 6 recites a feature in addition to what is recited in claim 1, and does not conflict with claim 1.

Withdrawal of the objection to claims 6-8 is requested.

IV. All Pending Claims are Patentable

Applicant notes with appreciation the identification of allowable subject matter in claims 13, 14, 21, 30, 31 and 44. Applicant respectfully submits that all pending claims are in condition for allowance as discussed below.

Claims 1-5, 9-12, 15-20, 22-29, 32-43 and 45-56 stand rejected under 35 U.S.C. §102(b) over JP-A-6-283403 (hereafter "Japan-403"). This rejection is respectfully traversed.

Regarding independent claim 1, Japan-403 does not disclose the second step of "setting the positional relationship...on the basis of information about the measured height...and information about an inclination angle of a running surface of the substrate stage." Japan-403 performs adjustments using the auto focus system and the auto leveling system based only on the "measured height" (emphasis added). Japan-403 does not use information about an inclination angle of a substrate stage running surface to set the positional relationship.

Regarding independent claims 12 and 35, Japan-403 fails to disclose the steps or structure for "measuring at least one of a rolling amount of the substrate stage, a pitching

amount of the substrate stage, and a displacement amount of the substrate stage in an optical axis direction of the optical system at a plurality of positions within a movement stroke of the substrate stage using a fiducial member having a good flatness arranged on the substrate stage, and storing a result of measurement" (emphasis added). The Office Action asserts that the fiducial member in Japan-403 is mirror 56. See the Office Action at, e.g., page 4, line 13. Fig. 20 of Japan-403 fails to teach or suggest "measuring at least one of a rolling amount..., a pitching amount, and a displacement amount of the substrate stage in an optical axis direction ... using a fiducial member." Fig 20 of Japan-403 shows measurement performed between the interferometer 57 and mirror 56 perpendicular to the optical axis AX1 direction and not along the optical axis direction as recited in claims 12 and 35

Regarding independent claim 18, Japan-403 fails to disclose "measuring a height position of the substrate at a first measuring point which arrives at an image-forming area on the substrate prior to the part of the area in the relative movement direction; measuring a height of the substrate at a second measuring point which arrives at an image-forming area on the substrate prior to the first measuring point in the relative movement direction; and moving the substrate to a height position within a detectable range of a unit for measuring the height position of the substrate at the first measuring point, on the basis of a measured value obtained at the second measuring point." (emphasis added).

Regarding independent claim 25, Japan-403 fails to disclose "a focusing stage which conforms the surface of the substrate to the image plane of the optical system in the exposure area of the optical system on the basis of a value measured by the focus position-measuring unit and information about an inclination angle of a running surface of the substrate stage" (emphasis added). As noted above with respect to claim 1, Japan-403 does not disclose using information about an inclination angle of a running surface of the substrate stage to conform the surface of the substrate to the optical system image plane.

Regarding independent claim 40, Japan-403 fails to teach or suggest "a second focus position-measuring unit which measures a height position of the substrate at a second measuring point set in the vicinity of the first measuring point; and a focusing stage which allows a height of the surface of the substrate to be included within a detectable range of the first focus position-measuring unit on the basis of a result of measurement performed by the second focus position-measuring unit" (emphasis added).

The remaining claims are dependent claims and therefore are patentable for at least the reasons set forth above with respect to their corresponding independent claims.

V. Conclusion

In view of the foregoing, Applicant respectfully submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe anything further would be desirable to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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MAC/djb

Attachments:

Petition for Extension of Time
Information Disclosure Statement

Date: July 31, 2003

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